Air Quality Permitting
Statement of Basis

June 5, 2006

Tier II Operating Permit and Permit to Construct No. P-060406

NW Design Molders, Inc., Jerome

Facility ID No. 053-00005

Prepared by:

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AIR QUALITY DIVISION

FINAL

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Acronyms, Units, and Chemical Nomenclature

AFS	AIRS Facility Subsystem
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
EPS	expandable polystyrene
HAPs	Hazardous Air Pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/day	pound per day
MACT	Maximum Available Control Technology
MMBtu	Million British thermal units
MMBtu/hr	Million British thermal units per hour
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM_{10}	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	synthetic minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	Tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 404.04 and 207, respectively, Rules for the Control of Air Pollution in Idaho (Rules), for Tier II operating permits and Permits to Construct.

2. FACILITY DESCRIPTION

The facility manufactures polystyrene foam products for various packaging and/or insulation purposes. Expandable Polystyrene (EPS) raw materials, or beads, arrive at the facility in 1,000-pound lined boxes. The beads contain an encapsulated blowing agent, pentane, which is usually 3.5 to 6.5% of the material by weight. The emission rates at each phase of the operation vary according to such factors as the density of the expanded beads, the shape and size of the molded parts, and finished goods storage requirements. The beads are typically vacuum fed from the boxes to the pre-expanders where the beads are partially expanded to the desired density (referred to as pre-puff).

Approximately 25% of the encapsulated pentane is released in the expansion process. The expanded beads are then aged from 6 to 48 hours to allow the pre-puff to stabilize by diffusing air into the expanded beads. Approximately 20% of the initial pentane is released during this aging process. These materials are then transferred directly into molds where, with use of steam, they are fused together into the desired shapes created by the mold forms. Approximately 15-25% of the initial pentane is released during the molding process. In the post-molding phase, approximately 15% of the initial pentane is released in the first 24 hours, and approximately 10% in the next 24 hours. The remaining 5 to 15% pentane diffuses out of the product over a long period of time.

3. FACILITY / AREA CLASSIFICATION

NW Design Molders is defined as a synthetic minor facility because, without permit limits on the potential to emit, emissions would exceed 100 tons per year. The AIRS classification is "SM" because the potential to emit is limited to less than major source levels.

The facility is located within AQCR 63 and UTM zone 11. The facility is located in Jerome County which is designated as unclassifiable for all criteria pollutants (PM_{10}, CO, NO_X, SO_2, Pb, and O_3).

The AIRS information provided in Appendix B defines the classification for each regulated air pollutant emitted at NW Design Molders. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

This project is intended to revise the Tier II operating permit and Permit to Construct (Tier II and PTC) issued June 21, 2004, by removing the references to specific process equipment descriptions, so as to maintain operational flexibility by allowing the installation, replacement, and/or removal of the process equipment, while maintaining existing total daily and total annual facility-wide VOC emission limits from the facility. This permit is also the renewal of the facility's existing Tier II operating permit and permit to construct.

The application had requested 95.2 tons of VOCs per 12 consecutive month period. A telephone conversation on April 24, 2006, with Mr. Gary Bremer revealed that the requested amount should have been 74.3 tons of VOCs per year, consistent with the former permit. Mr. Bremer indicated that the 95.2 tons was requested for a separate facility (Foam Molders) and was an oversight when he completed the application letter for NW Design Molders.

4.1 Application Chronology

February 17, 2006	Application received
April 4, 2006	Application determined complete
April 28, 2006	Draft permit provided to DEQ's Twin Falls Regional Office for review and comment
May 12, 2006	Draft permit provided to facility for review and comment
June 8, 2006	Final permit issued to facility.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this Tier II and PTC.

5.1 Equipment Listing

As explained in Section 4.0, references to the specific equipment descriptions have been revised per the applicant's request. None of the permit revisions have resulted in an increase of emissions.

5.2 Emissions Inventory

The emissions inventory table appearing in Appendix A includes all potential emissions from all sources at the facility. The emissions inventory table is provided for informational purposes only. Again, emissions do not increase as a result of the permit revision.

5.3 Modeling

No modeling was required for this permit revision because emissions are not increasing.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this Tier II and PTC.

IDAPA 58.01.01.209.04 ..... Revisions of Permit to Construct; and

IDAPA 58.01.01.404.04 ..... Permit Revision or Renewal [Tier II]

The February 16, 2006 application proposes revisions to the facility's existing Tier II and PTC. As explained in Section 4.0, these revisions have resulted in no net increases of emissions. Therefore, in accordance with IDAPA 58.01.01.209.04 and 404.04, no public comment period is required.

5.5 Fee Review

In accordance with IDAPA 58.01.01.225, this general permitting action, which required minimal engineering, requires a PTC processing fee of $500. The PTC processing fee was received on May 31, 2006.

6. PERMIT CONDITIONS

This section describes only the revisions made to the permit as a result of this permitting action.

The facility-wide requirements and general provision sections have been updated to incorporate the latest language pertaining to those permit conditions.

This permit revises and replaces the terms and conditions of Tier II and PTC No. T2-030407, issued June 21, 2004.

The equipment descriptions for the pre-expander, puff storage, molding, and product storage, were removed and replaced by "Process Equipment". This provides operation flexibility by allowing the installation, replacement, and/or removal of process equipment to accommodate industry changes.

Existing permit conditions are identified as "Existing Permit Conditions", and revised permit conditions are identified as "Revised Permit Conditions."

6.1 Existing Permit Condition 1.3

Table 1.1 SUMMARY OF REGULATED SOURCES

Permit Sections	Source Description	Emissions Control(s)
2	Boiler Manufacturer: Superior Model: 6-750 Rated heat capacity: 6.3 MMBtu/hr Fuel: Natural gas	None
3	Pre-expander Manufacturer: AMD Model: AMD Type P1500/0 Capacity: 1,200 pounds of EPS bead per hour Pre-expander Manufacturer: Kurtz Model: 1609/90 Capacity: 100 pounds of EPS bead per hour Pre-expander Manufacturer: NWB Model: Not available Capacity: 600 pounds of EPS bead per hour	None
3	Prepuff aging storage area Manufacturer: Advance Specialties	None
3	Molding Manufacturer: TRI Model: 2001	None
3	Press Manufacturer; Springfield Model: H30	None
3	Press Manufacturer: FMI Model: 130	None
3	Post molding aging (the first 24 hours) Manufacturer: Not available	None
3	Product Storage (the second 24 hours) Manufacturer: Not available	None

6.2 Revised Permit Condition 1.3

Permit Section	Source Description	Emissions Control(s)
2	Boiler Manufacturer: Superior Model: 6-750 Rated heat capacity: 6.3 MMBtu/hr Fuel: Natural gas	None
3	Processing equipment	None

6.3 Existing Permit Condition 3.3

The combined VOC emissions from the pre-expanders, the prepuff aging storage area, molding, presses, the post molding aging (the first 24 hours), and product storage (the second 24 hours) shall not exceed 1,783 lb/day.

The combined VOC emissions from the pre-expanders, the prepuff aging storage area, molding, presses, the post molding aging (the first 24 hours), and product storage (the second 24 hours) shall not exceed 74.3 tons per any consecutive 12-month period (T/yr).

6.4 Revised Permit Condition 3.3

- The combined VOC emissions from the process equipment shall not exceed 1,714 lb/day.
- The combined VOC emissions from the process equipment shall not exceed 74.3 tons per any consecutive 12-month period.

6.5 New Permit Condition 3.3.1

Compliance with Permit Condition 3.3 shall be determined using the results from the equations in Permit Condition 3.4 in conjunction with following equations:

- Daily VOC Limit

$$\text{Daily VOC} = \textit{Throughput}\left(\tfrac{lb}{day}\right) \times \%\text{pentane} \times 0.85$$

- Annual VOC Limit

$$\text{Annual VOC} = \textit{Throughput}\left(\tfrac{lb}{12-months}\right) \times \textit{average}\%\text{pentane} \times 0.85 \ / \ 2000 \text{ lb/T}$$

6.6 Existing Permit Condition 3.4

The maximum EPS beads throughput to the pre-expanders shall not exceed 28,800 lb/day.

The maximum EPS beads throughput to the pre-expanders shall not exceed 1,248 tons per any consecutive 12-month period (T/yr).

6.7 Revised Permit Condition 3.4

Throughput shall be limited based on the pentane content of the EPS beads and shall be determined using the following equations:

- Maximum Daily Throughput Limit

$$\text{Daily Throughput (lb/day)} = \frac{1{,}714\ ^{lb VOC}/_{day}}{\%\text{pentane} \times 0.85}$$

- Maximum Annual Throughput Limit

$$\text{Annual Throughput (tons/yr)} = \frac{74.3 ton}{average\%\text{pentane} \times 0.85}$$

6.8 Existing Permit Condition 3.6

The permittee shall monitor and record the following information. These records shall remain onsite for the most recent five year period and shall be made available to DEQ representatives upon request.

- The throughput of EPS beads in pounds per day.
- The throughput of EPS beads for the previous consecutive 12-month period.
- For each purchase of EPS beads, documentation clearly indicating the percent pentane by weight of the beads.

6.9 Revised Permit Condition 3.6

A compilation of the most recent five years of records shall be kept onsite and shall be available to Department representatives upon request. The permittee shall monitor and record the following information:

- The pentane emissions in pounds of VOC per day and pounds of VOC per the most recent 12-month period, using the equations in Permit Condition 3.3.1 and 3.4;
- The actual throughput of beads calculated by Permit Condition 3.4 both daily and annually;
- Documentation for each purchase of EPS beads that shows the percent pentane by weight of the beads.

7. PERMIT REVIEW

DEQ's Twin Falls Regional Office was provided the draft permit for review and comment on April 28, 2006. The Regional Office suggested removing the daily VOC calculation requirement from the permit. The suggestion was not incorporated into the permit since the facility already calculates daily emissions through an emissions tracking program.

The facility was provided the draft permit for review and comment on May 12, 2006. The facility had no comments on the draft permit.

8. PUBLIC COMMENT

A public comment period on the proposed Tier II operating permit and Permit to Construct, and application materials was not required, in accordance with IDAPA 58.01.01.209.04 and 404.04.

9. RECOMMENDATION

Based on review of the application materials, and all applicable state and federal rules and regulations, staff recommends that NW Design Molders, Inc. be issued final Tier II Operating Permit and PTC No. P-060406 for revisions to their existing Tier II and PTC. No public comment period is required, and the project does not involve PSD requirements.

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APPENDIX A

NW Design Molders, Inc.

Tier II Operating Permit and Permit to Construct No. P-060406

Facility ID No. 053-00005

Emissions Inventory

EMISSIONS INVENTORY BASED ON PTE

NW Design Molders, Jerome Potential Emissions[a] – Hourly (lb/hr), and Annual (T/yr)										
Source Description	**PM_{10}**		**NO_x**		**CO**		**VOC**		**SO_2**	
	lb/hr	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Boiler, Superior, 6.32 MMBtu/hr natural gas	0.05	0.20	0.60	2.63	0.50	2.21	0.03	0.14	0.004	0.02
Process Equipment							71.4	74.3		
Total	0.05	0.20	0.60	2.63	0.50	2.21	71.43	74.44	0.004	0.02

[a] As determined by a pollutant-specific U.S. EPA reference method, a Department-approved alternative, or as determined by the Department's emissions estimation methods used in this permit analysis.

APPENDIX B

NW Design Molders, Inc.

Tier II Operating Permit and Permit to Construct No. P-060406

Facility ID No. 053-00005

AIRS Data Entry Form

AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	B						U
NO_x	B						U
CO	B						U
PM_{10}	B						U
PT (Particulate)	B						
VOC	SM					SM	
THAP (Total HAPs)	B						
			APPLICABLE SUBPART				

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

NA = Not applicable as defined in IDAPA 58.01.01.579, constructed prior to baseline dates.